

Project Baseline Summary Report

Data Source: **EM CDB**
Operations/Field Office: **Oak Ridge**
Site Summary Level: **Oak Ridge Reservation**
Project **OR-211 / Y-12 Waste Operations**

Report Number: **GEN-01b**
Print Date: **3/9/2000**
HQ ID: **0089**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

This PBS covers the Waste Operations activities at the Y-12 site, below are the facilities and activities included:

West End Treatment Facility (WETF) - Treatment operations for the WETF include unloading tankers, polytanks, and other smaller containers, operating the treatment equipment including sampling, pumping and monitoring process waste, and packaging and sampling treatment residuals. Treatment at WETF is accomplished in three processes: 1) Head End Treatment for waste receipt, pH adjustment and hydroxide precipitation of heavy metals; 2) Bio-denitrification/ Bio-oxidation for destruction of nitrates and organics; 3) Effluent Polishing for removal of trace metals, organics, and suspended solids with subsequent discharge to Upper East Fork Poplar Creek.

Central Pollution Control Facility (CPCF) - Operations at CPCF focuses on the treatment of currently generated and legacy waste, and discharge and dispose of treatment process generated residuals with no NPDES violations. Specific waste streams treated at the CPCF include: 1) batch treatment of unique wastewater not meeting acceptance requirement of one of the large scale treatment facilities and requiring an individually developed treatment process; 2) Pretreatment of currently generated concentrated nitrate bearing waste; 3) Treatment and discharge of non-nitrate wastewater; and 4) Batch treatment of Appendix-B legacy waste currently stored at ETTP.

Groundwater Treatment Facility (GWTF) - Operations at GWTF focuses on treatment for newly generated mixed wastewaters, primarily groundwater, originating from the Bear Creek Burial Grounds. This effort consists of collection, treatment and storage of wastewater at the Liquid Storage Facility (LSF), transport of all wastewater from LSF to the Groundwater Treatment Facility (GWTF), and treatment and discharge of the water from the GWTF. Also included are the segregation, packaging and characterization of newly generated residuals (carbon, filters, PPE, oil and sludge) at the LSF and GWTF.

Uranium Chip Oxidation Facility (UCOF) - The objective of UCOF is to reduce the volume of the depleted pyrophoric uranium metal materials and convert them to the chemically stable uranium oxide form. Complete processing includes uranium chip handling, weighing and oxidation; system off-gas treatment; and uranium oxide handling and packaging.

Sanitary/Industrial Landfills - Landfill operations includes the following: 1) Sanitary baler which accepts industrial/sanitary waste only; 2) Landfill IV, which accepts classified industrial and institutional solid waste; 3) Landfill V, which accepts sanitary/industrial solid waste; 4) Spoil Area which accepts suitable sanitary/industrial fill material that would otherwise consume valuable Landfill V volume; 5) Landfill VI, which accepts construction/demolition solid waste 6) Pre-operational care activities for Landfill VII (construction/demolition waste) and post-closure care activities for Landfill II (sanitary/industrial waste).

Project Status in FY 2006:

In FY 2006, Y-12 Waste Operations will be continuing ongoing Waste Treatment and Disposal Operations at the West End Treatment Facility, the Central Pollution Control Facility, the Groundwater Treatment Facility, the Uranium Chip Oxidation Facility and the Sanitary/Industrial Landfills. These operations will support both Legacy Waste and Newly Generated Waste.

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Project Description Narratives

Post-2006 Project Scope:

Beyond FY 2006 Y-12 Waste Operations will continue ongoing operations in support of Legacy Waste and Newly Generated Waste.

Project End State

The Y-12 Waste Operations EM Mission of treating legacy and EM and non-EM newly generated waste will continue until all Y-12 legacy waste and EM newly generated waste is dispositioned. When this EM mission is completed, the facilities will continue to operate in support of Defense Programs.

Cost Baseline Comments:

This PBS costs are based on extrapolation estimates. Extrapolation estimates are typically derived from historical cost data and based on a required level of effort to perform a task and upon a historical production quantity. One example of an extrapolation estimate used in this PBS is an estimate for the operation of a waste handling facility. In this example, the only available data is the quantity of wastes handled per year and some historical costs for the different sub-operations of the facility over a given duration. To prepare a new estimate for planned out-year operations; extrapolations of these actual costs are adjusted with logic from more recent cost trends and the Managing & Integrating Contractor approach/expectations.

Safety & Health Hazards:

The most common environment, safety, and health issues are associated with handling material that is contaminated; radiological or chemical, or the handling of chemicals. This activity includes hazards such as the operation of heavy equipment, hoisting and rigging, manually handling (ergonomics), pinch points, slips - trips - and falls, and the use of hand and portable power tools. The chemicals themselves (i.e. sodium hydroxide, hydrogen peroxide, and sulfuric acid) may also pose a hazard to the employee, the public, or the environment. Mishandling of these materials may cause an environmental insult such as excess emissions or a release.

Safety & Health Work Performance:

These activities are controlled by developing procedures that are in compliance with applicable permits and laws. In addition, pre-job briefings, Radiological Work Permits (RWP), and an Integrated Safety Management System are used to as work control documents. A primary controller for these to work effectively is employee feedback.

PBS Comments:

Baseline Validation Narrative:

The Oak Ridge Operations Office Environmental Management Life Cycle Baseline (LCB) was submitted by the Managing and Integrating Contractor, Bechtel Jacobs Company LLC, to DOE-ORO on April 1, 1999. The final draft LCB will be submitted to DOE-ORO on June 1, 1999 after formal receipt and incorporation of comments. A validation of the baseline is in process using an independent contractor to DOE-ORO. The validation will be ongoing until complete and the final validation report is scheduled to be issued on June 25, 1999.

General PBS Information

Project Validated?	Date Validated:
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General PBS Information

Has Headquarters reviewed and approved project? No
Date Project was Added: 3/10/1999
Baseline Submission Date: 7/1/1999
FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	N	N	N	Y	Y	N

Project Identification Information

DOE Project Manager: Clayton Gist
DOE Project Manager Phone Number: 423-576-6821
DOE Project Manager Fax Number: 423-576-6074
DOE Project Manager e-mail address: gistcs@oro.doe.gov
Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	189,420	2,304,168	2,493,588	31,827	29,336	24,186	17,256	17,904	16,549	17,191	15,680	16,010	16,345	16,689	17,039
PBS Baseline (constant 1999 dollars)	180,278	943,641	1,123,919	31,827	29,336	24,186	17,256	17,904	16,209	16,491	14,732	14,733	14,732	14,732	14,732
PBS EM Baseline (current year dollars)	189,420	0	189,420	31,827	29,336	24,186	17,256	17,904	16,549	17,191	15,680	16,010	16,345	16,689	17,039
PBS EM Baseline (constant 1999 dollars)	180,278	0	180,278	31,827	29,336	24,186	17,256	17,904	16,209	16,491	14,732	14,733	14,732	14,732	14,732

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	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	17,397	17,763	18,135	18,517	98,581	109,375	121,352	134,640	149,384	165,742	183,891	204,028	226,370	251,158	278,660	309,175
PBS Baseline (constant 1999 dollars)	14,732	14,733	14,732	14,733	73,726	73,726	73,726	73,726	73,726	73,726	73,726	73,726	73,726	73,726	73,725	73,726
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-EM Costs included in the Cost Baseline

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-EM Category: Newly Generated													
DOE - Unspecified Office											100	100	100
	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
Non-EM Category: Newly Generated													
DOE - Unspecified Office	100	100	100	100	100	100	100	100	100	100	100	100	100

Baseline Escalation Rates

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	0.00%	0.00%	0.00%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

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Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project:

Current Projected End Date of Project: 9/30/2070

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	Actual 1997 Cost:	29,336	Actual 1998 Cost:	17,256
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	-46,592	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):		-1,258
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	-47,850			

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	-47,850	
Additional Amount to Reconcile (+):	172,115	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	124,265	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Y-12 Waste Operations Project Start	OR211-001		10/1/1996								
Y-12 Waste Operations Project End Milestone	OR211-002		9/30/2070								

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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Y-12 Waste Operations EM Mission Complete	OR211-003		9/30/2013								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Y-12 Waste Operations Project Start	OR211-001			Y							Y-12 Waste Operations Project Start Milestone
Y-12 Waste Operations Project End Milestone	OR211-002				Y						Project End Milestone
Y-12 Waste Operations EM Mission Complete	OR211-003					Y					

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2006
MLLW														
Treatment	M3	233.40	0.00	233.40	0.00		0.00			56.10	56.10	56.10	65.10	0.00
MLLW														
Storage	M3									9.00	9.00	9.00	0.00	0.00
MLLW														
Comm. Disp.	M3	1,235.00	14,976.00	16,211.00	0.00		0.00			287.90	89.70	65.70	65.70	258.00
LLW														
Treatment	M3	1,395.00	11,520.00	12,915.00	0.00		0.00	0.00	135.00	180.00	180.00	180.00	180.00	180.00
LLW														
Storage	M3							0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
LLW														
Comm. Disp.	M3	360.00	4,608.00	4,968.00	0.00		0.00				72.00	72.00	72.00	72.00
LLW														
Ship to DOE Disp.	M3	9,923.00	23,616.00	33,539.00	0.00		0.00	0.00	0.00	63.00	369.00	8,015.00	369.00	369.00
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	
MLLW														
Treatment	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MLLW														
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MLLW														
Comm. Disp.	M3	258.00	234.00	234.00	234.00	234.00	234.00	234.00	1,170.00	1,170.00	1,170.00	1,170.00	1,170.00	
LLW														
Treatment	M3	180.00	180.00	180.00	180.00	180.00	180.00	180.00	900.00	900.00	900.00	900.00	900.00	
LLW														
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
LLW														
Comm. Disp.	M3	72.00	72.00		72.00	72.00	72.00	72.00	360.00	360.00	360.00	360.00	360.00	
LLW														
Ship to DOE Disp.	M3	369.00	369.00	369.00	369.00	369.00	369.00	369.00	1,845.00	1,845.00	1,845.00	1,845.00	1,845.00	
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total				

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
MLLW										
Treatment	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00		373.40
MLLW										
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
MLLW										
Comm. Disp.	M3	1,170.00	1,170.00	1,170.00	1,170.00	1,170.00	1,170.00	1,170.00		16,211.00
LLW										
Treatment	M3	900.00	900.00	900.00	900.00	900.00	900.00	900.00	0.00	12,780.00
LLW										
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
LLW										
Comm. Disp.	M3	360.00	360.00	360.00	360.00	360.00	360.00	360.00		4,968.00
LLW										
Ship to DOE Disp.	M3	1,845.00	1,845.00	1,845.00	1,845.00	1,845.00	1,845.00	1,845.00		33,539.00

Technology Needs

Site Need Code: **ORWM-10**

Site Need Name: **Removal of RCRA Metals from Aqueous Waste**

Focus Area Work Package ID: **MW-08**

Focus Area Work Package: **Facilitating Deployment for Unique Wastes**

Focus Area: **MWFA**

Agree with Technology Link: **Y**

Benefits (Cost, Risk Reduction, Both): **Cost**

Technologies

Recovery of Mercury

0

Mercury Contamination - Separate and Remove Mercury using Sorbent Process

0

Cost Savings (in thousands of dollars)

Range of Estimate

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